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EXAMINER	
QURESHI, SHABANA	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/496,990	YIP ET AL.	
	Examiner	Art Unit	
	Shabana Qureshi	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claims 1-60 are pending in this office action. Applicant's arguments filed have been fully considered, however, claims are rejected under new grounds of rejection.

Applicant argues that Shah discloses a resource allocation procedure based on future connections, not connections already admitted. Examiner respectfully disagrees. Examiner directs the Applicant to column 3, lines 5-13, where Shah states:

> "...the effective bandwidth requirement of both individual connections and the aggregate bandwidth usage of connections multiplexed on a given link. This information is provided by accounting (on each link) for the amount of bandwidth currently allocated to accommodate existing connections..."

Within this citation it is disclosed that existing connections are considered in the calculation for effective bandwidth.

Applicant also argues that Shah does not disclose a booking factor which is included in the ECR. Applicant further explains the description of Shah that Examiner has already cited. However, in order to Applicant to properly state his argument, he must explain how the present invention is distinguishable over the prior art with a discussion of the difference between the functionality of cited matter with claimed matter of the present application. Applicant fails to define booking factor in the specification or the claims. It is the duty of the Examiner to interpret the claims as broadly as possible, and Examiner interprets the cited matter to teach a factor included in the ECR that considers traffic parameters, i.e. booking factor.

As per Applicant claiming Kinnunen is not prior art for the instant application, Examiner has withdrawn the Kinnunen reference from her rejection. Examiner directs Applicant to lines

48-56 of column 4 of Shah, where the required bandwidth, interpreted to be equivalent to a minimum resource needed for admitting connections (see also column 7, line 52 – column 8, line 59). It also meets QOS requirements (column 8, lines 55-59) and is measured within a measurement window (interpreted as a threshold, (column 8, lines 64-67). The required bandwidth is further input into a controller to make an admission decision, the same way the instant invention discloses theECR and utilization factor (in which required bandwidth is included as a factor) is fed into a generator to make an admission decision. Therefore, Examiner interprets Shah to teach the method as described by the Applicant in the instant application.

As per Applicant's argument that Shah does not teach scaled cell rate is determined with the use of data structures and tables, see explanation in the modified office action below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shah et al (U.S. 5,917,804).

As per claims 1 and 49, Shah et al teach an apparatus to control connection admission for a connection request in a network, the system comprising two estimators that estimate the required bandwidth using two different methods, and a controller that makes a decision on connection admission based on the lower bandwidth estimated. The estimators disclosed by Shah et al employ models that determine the parameters of the applicant's invention, such as: an ECR based on the description of the connection request, the description including a booking factor (column 6, lines 46-63) and a measured utilization factor for admitted connections in the network using measurements of data streams arriving at queues (column 1, lines 30-65; column 6, lines 34-45). Shah et al also teach a controller coupled to the first and second estimators to generate an admission decision for the connection request based on the parameters passed on by the first and second estimators. However, Shah teaches that the parameters passed on to the controller are the two values of estimated virtual bandwidths, while the applicant teaches that the parameters passed on to the controller are ECR and measured utilization factor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to pass the ECR and utilization factor to the controller instead of the virtual bandwidth, because either may

be used to make an admission decision. The controller of the applicant's invention must compute the virtual bandwidth in order to make the admission decision. The determination of the virtual bandwidth at the estimation step does not make the applicant's invention a novel invention.

As per claims 2 and 50, Shah et al teach the apparatus of claims 1 and 49, wherein the description of connection request further includes a connection descriptor and quality of service descriptor (column 1, lines 37-47; column 8, lines 55-60).

As per claims 3 and 51, Shah et al teach the apparatus of claims 2 and 50, wherein the connection descriptor includes at least one of a cell rate, a transport device speed, a queue depth, a cell loss ratio, and a link capacity (column 1, lines 37-47, column 8, lines 55-60).

As per claims 4 and 52, Shah et al teaches the apparatus of claims 2 and 50, wherein the cell rate is one of a PCR, SCR, MBS, and a MCR (column 7, lines 33-41).

As per claims 5 and 53, Shah et al teach the apparatus of claims 4 and 52, wherein the QoS descriptor is one of a CBR, rt-VBR, nrt-VBR, UBR, ABR, and a GBR (column 1, line 66 – column 2, line 23).

As per claims 6-11 and 54-59, Shah et al teach the apparatus of claims 5 and 53. However, Shah et al does not teach that a scaled cell rate is determined by the use of data structures, arrays, link lists, etc. It is not explicitly stated that the arrays are indexed by certain values or contain certain ratios, but the arrays contain the same parameters as claimed by the applicant and yield the same result and are therefore functionally equivalent (columns 7-10 disclose an overall picture, specifically (column 6, lines 46-61, mean rate is interpreted to be scaled cell rate; column 4, lines 28-41; column 7, line 30 – column 8, line 30, figure 3 and

relevant passage)). It was also obvious to one of ordinary skill in the art at the time the invention was made that the statistical algorithms taught by shah and ATM switch connections operate with look-up tables, which can be manipulated by being indexed in various ways. The calculations are also inherent to Shah et al, but with obvious variations. Other references that teach these calculations are Petajisto et al (WO 99/65194, pages 10-13), Beshai et al (US 5,881,049, columns 3-10). See also MPEP 2131.01 and MPEP 2144.01

As per claim 12, Shah teaches the apparatus of claim 1, wherein the estimators comprise:

- A capacity estimator to estimate a minimum resource needed for the admitted connections (required bandwidth, interpreted to be equivalent to a minimum resource needed for admitting connections (column 4, lines 48-56; column 7, line 52 – column 8, line 59) meeting QoS requirements (column 8, lines 55-59) within a measurement window (interpreted as a threshold, column 8, lines 64-67); and
- A measured utilization factor generator coupled to the capacity estimator to generate the measured utilization factor using the estimated minimum resource and measurement parameters (required bandwidth is further input into a controller to make an admission decision, the same way the instant invention discloses the ECR and utilization factor (in which required bandwidth is included as a factor) is fed into a generator to make an admission decision, column 3, lines 5-44).

As per claim 13, Shah et al teach a method to control connection admission for a connection request in a network, the system comprising two estimators that estimate the required

bandwidth using two different methods, and a controller that makes a decision on connection admission based on the lower bandwidth estimated. The estimators disclosed by Shah et al employ models that determine the parameters of the applicant's invention, such as: an ECR based on the description of the connection request, the description including a booking factor (column 6, lines 46-63) and a measured utilization factor for admitted connections in the network using measurements of data streams arriving at queues (column 6, lines 34-45). Shah et al also teach a controller coupled to the first and second estimators to generate an admission decision for the connection request based on the parameters passed on by the first and second estimators. However, Shah teaches that the parameters passed on to the controller are the two values of estimated virtual bandwidths, while the applicant teaches that the parameters passed on to the controller are ECR and measured utilization factor. It is obvious to one of ordinary skill in the art to pass the ECR and utilization factor to the controller instead of the virtual bandwidth, because either may be used to make an admission decision. The controller of the applicant's invention must compute the virtual bandwidth in order to make the admission decision. The determination of the virtual bandwidth at the estimation step does not make the applicant's invention a novel invention.

As per claim 14, Shah et al teach the method of claim 13, wherein the description of connection request further includes a connection descriptor and quality of service descriptor (column 1, lines 37-47; column 8, lines 55-60).

As per claim 15, Shah et al teach the method of claim 14, wherein the connection descriptor includes at least one of a cell rate, a transport device speed, a queue depth, a cell loss ratio, and a link capacity (column 1, lines 37-47, column 8, lines 55-60).

As per claim 16, Shah et al teaches the method of claim 14, wherein the cell rate is one of a PCR, SCR, MBS, and a MCR (column 7, lines 33-41).

As per claim 17, Shah et al teach the method of claim 16, wherein the QoS descriptor is one of a CBR, rt-VBR, nrt-VBR, UBR, ABR, and a GBR (column 1, line 66 – column 2, line 23).

As per claims 18-23, Shah et al teach the method of claim 17. However, Shah et al does not teach that a scaled cell rate is determined by the use of data structures, arrays, link lists, etc. It is not explicitly stated that the arrays are indexed by certain values or contain certain ratios, but the arrays contain the same parameters as claimed by the applicant and yield the same result (columns 7-10). The calculations are also inherent to Shah et al, but with obvious variations. Other references that teach these calculations are Petajisto et al (WO 99/65194, pages 10-13), Beshai et al (US 5,881,049, columns 3-10). See also MPEP 2144.01 and 2131.01

As per claims 24 and 60, Shah teaches the method of claim 13, wherein the estimators comprise:

- A capacity estimator to estimate a minimum resource needed for the admitted connections (required bandwidth, interpreted to be equivalent to a minimum resource needed for admitting connections (column 4, lines 48-56; column 7, line 52 – column 8, line 59) meeting QoS requirements (column 8, lines 55-59) within a measurement window (interpreted as a threshold, column 8, lines 64-67); and
- A measured utilization factor generator coupled to the capacity estimator to generate the measured utilization factor using the estimated minimum resource

and measurement parameters (required bandwidth is further input into a controller to make an admission decision, the same way the instant invention discloses the ECR and utilization factor (in which required bandwidth is included as a factor) is fed into a generator to make an admission decision, column 3, lines 5-44).

As per claim 25, Shah et al teach a computer program product to control connection admission for a connection request in a network, the computer program product comprising two estimators that estimate the required bandwidth using two different methods, and a controller that makes a decision on connection admission based on the lower bandwidth estimated. The estimators disclosed by Shah et al employ models that determine the parameters of the applicant's invention, such as: an ECR based on the description of the connection request, the description including a booking factor (column 6, lines 46-63) and a measured utilization factor for admitted connections in the network using measurements of data streams arriving at queues (column 1, lines 30-65; column 6, lines 34-45). Shah et al also teach a controller coupled to the first and second estimators to generate an admission decision for the connection request based on the parameters passed on by the first and second estimators. However, Shah teaches that the parameters passed on to the controller are the two values of estimated virtual bandwidths, while the applicant teaches that the parameters passed on to the controller are ECR and measured utilization factor. It is obvious to one of ordinary skill in the art to pass the ECR and utilization factor to the controller instead of the virtual bandwidth, because either may be used to make an admission decision. The controller of the applicant's invention must compute the virtual

bandwidth in order to make the admission decision. The determination of the virtual bandwidth at the estimation step does not make the applicant's invention a novel invention.

As per claim 26, Shah et al teach the computer program product of claim 25, wherein the description of connection request further includes a connection descriptor and quality of service descriptor (column 1, lines 37-47; column 8, lines 55-60).

As per claim 27, Shah et al teach the computer program product of claim 26, wherein the connection descriptor includes at least one of a cell rate, a transport device speed, a queue depth, a cell loss ratio, and a link capacity (column 1, lines 37-47, column 8, lines 55-60).

As per claim 28, Shah et al teaches the computer program product of claim 26, wherein the cell rate is one of a PCR, SCR, MBS, and a MCR (column 7, lines 33-41).

As per claim 29, Shah et al teach the computer program product of claim 28, wherein the QoS descriptor is one of a CBR, rt-VBR, nrt-VBR, UBR, ABR, and a GBR (column 1, line 66 – column 2, line 23).

As per claims 30-35, Shah et al teach the computer program product of claim 29. However, Shah et al does not teach that a scaled cell rate is determined by the use of data structures, arrays, link lists, etc. It is not explicitly stated that the arrays are indexed by certain values or contain certain ratios, but the arrays contain the same parameters as claimed by the applicant and yield the same result (columns 7-10). The calculations are also inherent to Shah et al, but with obvious variations. Other references that teach these calculations are Petajisto et al (WO 99/65194, pages 10-13), Beshai et al (US 5,881,049, columns 3-10). MPEP 2144.01, 2131.01.

As per claims 36, Shah teaches the computer program product of claim 25, wherein the estimators comprise:

- A capacity estimator to estimate a minimum resource needed for the admitted connections (required bandwidth, interpreted to be equivalent to a minimum resource needed for admitting connections (column 4, lines 48-56; column 7, line 52 – column 8, line 59) meeting QoS requirements (column 8, lines 55-59) within a measurement window (interpreted as a threshold, column 8, lines 64-67); and
- A measured utilization factor generator coupled to the capacity estimator to generate the measured utilization factor using the estimated minimum resource and measurement parameters (required bandwidth is further input into a controller to make an admission decision, the same way the instant invention discloses the ECR and utilization factor (in which required bandwidth is included as a factor) is fed into a generator to make an admission decision, column 3, lines 5-44).

As per claim 37, Shah et al teach a system interfacing a network with connection admission for a connection request in a network, the system comprising two estimators that estimate the required bandwidth using two different methods, and a controller that makes a decision on connection admission based on the lower bandwidth estimated. The estimators disclosed by Shah et al employ models that determine the parameters of the applicant's invention, such as: an ECR based on the description of the connection request, the description including a booking factor (column 6, lines 46-63) and a measured utilization factor for admitted connections in the network using measurements of data streams arriving at queues (column 1, lines 30-65; column 6, lines 34-45). Shah et al also teach a controller coupled to the first and

second estimators to generate an admission decision for the connection request based on the parameters passed on by the first and second estimators. However, Shah teaches that the parameters passed on to the controller are the two values of estimated virtual bandwidths, while the applicant teaches that the parameters passed on to the controller are ECR and measured utilization factor. It is obvious to one of ordinary skill in the art to pass the ECR and utilization factor to the controller instead of the virtual bandwidth, because either may be used to make an admission decision. The controller of the applicant's invention must compute the virtual bandwidth in order to make the admission decision. The determination of the virtual bandwidth at the estimation step does not make the applicant's invention a novel invention.

As per claim 38, Shah et al teach the system of claim 37, wherein the description of connection request further includes a connection descriptor and quality of service descriptor (column 1, lines 37-47; column 8, lines 55-60).

As per claim 39, Shah et al teach the system of claim 38, wherein the connection descriptor includes at least one of a cell rate, a transport device speed, a queue depth, a cell loss ratio, and a link capacity (column 1, lines 37-47, column 8, lines 55-60).

As per claim 40, Shah et al teaches the system of claim 38, wherein the cell rate is one of a PCR, SCR, MBS, and a MCR (column 7, lines 33-41).

As per claim 41, Shah et al teach the system of claim 40, wherein the QoS descriptor is one of a CBR, rt-VBR, nrt-VBR, UBR, ABR, and a GBR (column 1, line 66 – column 2, line 23).

As per claims 42-47, Shah et al teach the system of claim 41. However, Shah et al does not teach that a scaled cell rate is determined by the use of data structures, arrays, link lists, etc.

It is not explicitly stated that the arrays are indexed by certain values or contain certain ratios, but the arrays contain the same parameters as claimed by the applicant and yield the same result (columns 7-10). The calculations are also inherent to Shah et al, but with obvious variations. Other references that teach these calculations are Petajisto et al (WO 99/65194, pages 10-13), Beshai et al (US 5,881,049, columns 3-10). See also MPEP 2144.01 and 2131.01.

As per claims 48, Shah teaches the system of claim 37, wherein the estimators comprise:

- A capacity estimator to estimate a minimum resource needed for the admitted connections (required bandwidth, interpreted to be equivalent to a minimum resource needed for admitting connections (column 4, lines 48-56; column 7, line 52 – column 8, line 59) meeting QoS requirements (column 8, lines 55-59) within a measurement window (interpreted as a threshold, column 8, lines 64-67); and
- A measured utilization factor generator coupled to the capacity estimator to generate the measured utilization factor using the estimated minimum resource and measurement parameters (required bandwidth is further input into a controller to make an admission decision, the same way the instant invention discloses the ECR and utilization factor (in which required bandwidth is included as a factor) is fed into a generator to make an admission decision, column 3, lines 5-44).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shabana Qureshi whose telephone number is (703) 308-6118. The examiner can normally be reached on Monday - Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (703) 305-9648. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

SQ
October 1, 2004

HOSAIN ALAM
SUPERVISORY PATENT EXAMINER